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SYMPOSIUM.

COLONIES FOR THE TUBERCULOUS.

THE BRITISH JOURNAL OF TUBERCULOSIS has endeavoured during the strenuous years of war to concentrate attention on practical aspects of the conflict against tuberculosis.[1] The fight for the prevention and arrest of tuberculosis calls for a systematically arranged, scientifically conducted, continuously applied, complete service. In this campaign highly organized forces and effectively co-ordinated schemes for attack are essential if any real success is to be attained. During recent days many have advocated the establishment of Colonies for the Tuberculous. The Tuberculosis Colony undoubtedly deserves a place in any complete system for dealing with tuberculous and tuberculously disposed cases. But wide differences of opinion exist regarding the nature, organization, administration, scope, limitations, and general effectiveness of a Tuberculosis Colony. There are but few experiments sufficiently complete to afford grounds for the formation of governing principles. We have therefore gathered a number of expressions of opinion from experts who, as serious students of the problem or from actual experience and experiment, are in a position to present data and afford advice which we believe will be invaluable in directing the way towards rational conclusions.

[1] The Symposium on "War and the Future of the Tuberculosis Movement" appeared in the issue of this journal for January, 1916, Vol. X., No. 1. The Symposium on "The Tuberculosis Movement under War and After-War Conditions" appeared in the journal for January, 1917, Vol. XI., No. 1. The Symposium on "Tuberculosis among Combatants and War-Workers" appeared in the journal for April, 1917, Vol. XI., No. 2. The Symposium on "The Arrest of Tuberculosis under War and After-War Conditions" appeared in the journal for January, 1918, Vol. XII., No. 1. Other articles and also the notes which have appeared in "The Outlook" section during the past three years have sought to arouse professional and public opinion to the pressing importance of the tuberculosis problem under existing conditions.

FROM SIR CLIFFORD ALLBUTT,
K.C.B., M.A., M.D., D.SC., LL.D., F.R.C.P., F.R.S.,
Regius Professor of Physic in the University of Cambridge,

AND

P. C. VARRIER-JONES,
M.A., M.R.C.S., L.R.C.P.,
Acting Tuberculosis Officer and Medical Adviser to the Insurance Committee, County of Cambridge.

There does not seem to be at present any definition of the name "colony" as used in connection with tuberculosis. In most cases the designation appears to be limited to a settlement where very specially selected early cases of tuberculosis are trained to work under open-air conditions. In Cambridgeshire, however, "colony" is used to signify a much larger idea, and the significance given to it has arisen because the problem of tuberculosis has been viewed as a whole. We must ask ourselves what it is we are really trying to do. Is it our object simply to attempt the cure of a small percentage of cases of tuberculosis—that is, the arrest of disease not only in early cases, but in those early cases which have been *very specially selected* for one particular purpose? It is well known that in consequence of the many factors to be taken into consideration, the number of cures is extremely small. We have to consider (1) the man's suitability from a medical point of view; (2) the fact that patients in early stages very rarely consent to change their occupation; (3) a man's limited aptitude for new work; (4) the provision for the family during the patient's enforced absence from home (which is a *sine qua non*): and (5) eventually the problem of finding suitable work for the patient on his return to the outside world, etc.; for it is obviously useless to train a man unless he has some assurance of a "job" afterwards. If this arrest of early disease is our only object, then colonies will deal with so small a number of cases that no impression will be made on the tuberculosis problem as a whole. With specially selected cases, we have no doubt that such a colony will serve a useful purpose in re-educating and re-training a small number of consumptives in suitable occupations; but we must remember that a mechanic who has been used to earn £3 a week will not consent to become a farm-labourer at 25s. a week. "Farm work" does not mean "light work," rather the contrary; therefore certain "industries" of a light nature must be provided, and tuberculous labour at the colony subsidized. We are of opinion, therefore, that a colony must embody a much larger conception than a place for selected early cases only. If we are to tackle the tuberculosis problem as a whole—that is, if we wish to eradicate or subdue

the disease—we must attempt to cut the "vicious circle" at some point or other, and to cut it through. We must take a course which means prevention of infection; this the education of a few early cases certainly does not do. Selecting early cases for sanatorium treatment has failed to cut this circle; colony treatment likewise, if *advocated only for specially selected early cases*, will also fail, because the mass of tuberculous cases which visit our hospitals and dispensaries are not eligible for the one or the other. On the one hand they are not early enough for a sanatorium, let alone a farm colony, nor late enough for homes for the dying. Until someone has the courage, whether by means of a colony or otherwise, to tackle this mass of infection—that is, the mass of middle cases, of men who can only do 30 to 50 per cent. of the work of a normal man—it is not much good talking about the eradication of tuberculosis. The colony, therefore, should really be a community, with a central institution for advanced patients where they may be nursed and tended to the last. A separate part of the estate should be marked off where varied and definite trades should be arranged, so that each patient may be engaged in an occupation which is as nearly like his old trade as possible; and these patients should be housed in specially constructed open-air shelters. Between these two extremes there should be a connecting-link, the training settlement for the mass of middle cases, which may in the one event be passed into the industrial part of the community, or in the other be cared for in the central institution. It must be remembered that by far the greatest number of cases discharged from the Army are middle cases; most of these will never be more than "50 per cent. men," and it is idle to expect that they can earn a living in the competition of the everyday world. Again, if we could isolate a certain considerable number of cases—and as time goes on the number would become more and more—we should limit the sources of infection, and this is by far our most difficult task. We have to face the truth that the great bulk of persons suffering from tuberculosis at the present time are incurable; therefore the State must see that they are placed under conditions where they may cease to be a source of infection to others, and meanwhile may do a certain percentage of work—that is, they must be housed on an estate and suitable work in some way provided for them. It is not fair that fellow-workmen should be subjected to the chances of infection by way of a consumptive mate in the workshop; and the same principle applies in the home and in public places. This principle and this peril public opinion will soon recognize; indeed, it is fast doing so. The small public results which are obtained by specially selecting cases for sanatorium treatment, however precious to the individual, are now perceived by medical and lay opinion to be a small recom-

pense for the amount of capital expended. For the most part, our present system attains neither the one end nor the other; too often it does not "cure," certainly it does not prevent the spread of infection. Prolonged treatment during residence at a colony such as we have described will give the man the best possible chance of recovery; or if recovery be not possible, then will permit of a life spent in favourable surroundings, with work provided in specially constructed workshops; and the general community will know that it is being protected from sources of infection. Such a complete scheme as we advocate goes far beyond the ordinary idea of a "colony"; but if literally we take the word "colony" to mean "a body of people transplanted from their mother-country to a remote province or country *to cultivate and inhabit it*," we shall see that, to justify the title, the scheme must be a complete one. With *subsidized* labour such a community may consist of tuberculous patients only, and in time grow to a comprehensive whole. Without subsidized labour the scheme will fail. In conclusion, we desire to add that in our opinion the colony system must be supplemented by some further provision for certain incurable and invalid cases. Many such persons have family ties which they ought not to cast aside even if they would. For some of these banishment to a colony, if distant from their homes, would be an inhuman measure. A better course for these, and one comparatively inexpensive, would be to provide cottage homes, if possible with small gardens, near their own people. The cottages and inmates would be tended by kindly women, who would need no large instruction in nursing, but would be taught to maintain internal sanitation, and so to control the access and regulation of visitors as to prevent infection.

FROM SIR STCLAIR THOMSON,

M.D., F.R.C.P.,

Professor of Laryngology and Physician for Diseases of the Throat, King's College Hospital, London; Laryngologist, King Edward VII. Sanatorium, Midhurst; Author of "Diseases of the Nose and Throat."

I have no personal experience of colonies for the tuberculous, nor have I made any practical study of the subject. Still, it has occurred to me that a small but, we all trust, a steadily increasing number of tuberculous patients will, as time goes on, be more promptly diagnosed and treated, and that these patients can then be returned to work in their usual occupations. Unfortunately, the larger number of these who now present themselves can only be patched up. It therefore strikes me that the suitable candidates for colony residence will not be very numerous;

that they will still have to live a sheltered existence; that those who cannot keep up their resistance may have to leave; while those who remain arrested and fairly vigorous will not be willing to stay! I am afraid that colonies will be difficult to work, and that their results will not be commensurate with the heavy expense which must be entailed. Our best hopes and endeavours should still be directed to better education of both the public and the profession, and to the establishment of better hygienic and social surroundings. Meanwhile, we may rest assured that the value of the sanatorium for suitable cases is established. Sanatorium treatment cannot be replaced by any other measures; and it is useless to impeach sanatoria for their insufficient or unsatisfactory results when after-care, which is a necessary part, of equal, if not greater, importance, continues to be neglected. The provision of this after-care is an urgent, complicated, and difficult problem, and must be considered and discussed in connection with the question which has arisen in regard to the establishment of colonies. Colonies will doubtless offer means whereby the arrest secured by sanatorium treatment can be consolidated. But before the patient returns to his old life the conditions of his bad environment must be removed by improved dwellings and the provision of hygienic factories and workshops. The public can be prepared for this by a more thorough education in the laws of hygiene, and by a more widespread preaching of the gospel of health in schools, homes, and pulpits.

FROM A. MAXWELL WILLIAMSON,

M.D., B.SC.,

Medical Officer of Health for the City of Edinburgh.

The conception of the farm colony for the treatment of tuberculosis offers, in my view, more hope of success than is likely to be attained by sanatorium treatment. I have always held the opinion, which is strengthened by experience, that the results attained by the latter method are in no sense commensurate with the cost entailed, and I do feel assured that in time it will be generally recognized that large sums laid out on preventive measures, including prominently better housing conditions, will be generally adopted in preference to a continuation of our present methods. The farm colony, however, it may safely be claimed, is at least one step in advance of the sanatorium, but entails certain considerations which must be borne in mind in attempting to realize the apparent advantages offered. (1) Only carefully selected cases can be admitted, and in practice it is found that this section forms a very

small proportion of the total number affected by tuberculosis. (2) There is obvious difficulty in inducing numbers of patients to avail themselves of the opportunities offered. This is readily explainable by the presence of home responsibilities, family ties, business complications, and a variety of reasons which seem to prevent absence from home during the necessarily prolonged period of treatment. (3) While it is true that any attempt to conduct a colony on a *small* scale is a heavy financial burden owing to the disproportionate expense as compared with results, it is at the same time difficult to find employment on a large farm for, say, one or two hundred colonists. An elementary knowledge of farming is sufficient to show that only at certain seasons can extra assistance be turned to good account. For the greater part of the year a very small number of workers is sufficient for the agricultural necessities. Experience in connection with Polton Farm Colony indicates that besides the ordinary branches of agriculture, with, in addition, the industry of pig-breeding on a large scale, there is the necessity for some other productive open-air occupation which would keep the persons under treatment employed throughout the whole year. Useful industries, therefore, connected with joinery, cabinet-making, fretwork, boot-making, and such-like, seem essential additions to the conception of a farm colony as such. (4) From the agricultural point of view experience also at Polton shows that comparatively small importance must be attached on the financial side to the results of the colonists' labours. Indeed, in that institution the work contributed by them is found to reduce the cost of upkeep per head by slightly under one shilling per week. (5) In selecting cases for treatment in a colony, I hold the opinion that preference should always be given to persons who intend to adopt thereafter some form of open-air life, as it cannot be claimed, with the slightest degree of certainty, that even such prolonged treatment will enable patients to withstand the strain of a return to their former work, home, and habits.

FROM C. KILLICK MILLARD,

M.D., D.SC.,

Medical Officer of Health for Leicester, and Medical Superintendent, Borough Sanatorium.

The following is a brief account of two small experiments in colonies for consumptives which have been tried by the Leicester Corporation

1. *The Darley Dale Scheme.*—Arrangements were made in 1914 with the proprietor of some large nurseries at Darley Dale (near Mat-

lock) for a small party (eight to ten) of patients from the Leicester Borough Sanatorium to live and work at the nurseries during the summer months. The patients led a camp life, all their expenses being paid. They were expected to work for five hours a day, the work consisting chiefly in weeding nursery beds. One of their number acted as " captain," and was put in charge of the colony in an honorary capacity. He proved very satisfactory. He did the housekeeping, kept the accounts, and sent a weekly report to the Medical Officer of Health at Leicester, who was responsible for the general supervision of the colony and paid an occasional visit during the ten weeks (August to October) that the colony was running. A local medical practitioner agreed to give any medical attendance that might be necessary, but as it happened his services were not required, as all the patients kept well. The proprietor agreed to pay the value of the work done, such earnings going to the Leicester Corporation towards the cost of the scheme. The patients were given a food allowance and did their own catering and cooking. They proved a decent set of fellows, and caused no trouble as regards discipline and got on very well together. Practically all the patients (about twelve altogether) appeared to derive distinct benefit from their stay, and several of them had kept well a year later; but the numbers are, of course, much too small to draw any conclusions from as regards results. The experiment was a success as far as it went, but was open to certain objections: (1) It was too far away for effective supervision, and the railway fares to and from Darley Dale were a considerable item. (2) The arrangement with the proprietor of the nursery, though it worked satisfactorily with a small colony, might easily have broken down if applied to a larger scheme. (3) We were fortunate in having a decent set of men and a good " captain." Otherwise we should probably have had trouble with the colonists falling out amongst themselves, etc. On the other hand, the situation of the nurseries, in a highly picturesque part of the Peak district, and the camp life, certainly appealed to the patients, all of whom were young fellows, aged about eighteen to twenty-five (" captain's " age twenty-eight). The total gross cost of the scheme, including railway fares, worked out at sixteen shillings per patient per week, or a net cost—after deducting the patients' earnings—of eleven shillings per week.

2. *The Leicester Frith Garden Colony.*—No colony was run during 1915, but during the summers of 1916 and 1917 the following scheme has been in operation: The Sanatorium Committee secured the use of a large kitchen garden, 1½ acres in extent, attached to a mansion situated half a mile from the Borough Sanatorium. They got this practically rent free, as it belonged to the Corporation, and as the

mansion was about to become vacant. The garden was well stocked with fruit trees, and contained a large amount of glass. A skilled gardener was engaged to work the gardens and be in charge. His only assistance was a band of eight to ten "colonists," who were all patients or ex-patients from the sanatorium who volunteered for the colony. The colonists slept in a group of sleeping shelters in another part of the grounds, away from the other sanatorium patients, and had the use of their own dining-room, with billiard-table, etc., and separate lavatory accommodation. They were allowed more liberty and privileges than the ordinary sanatorium patients. They put in four hours' work in the garden referred to, and were expected to do their own ward work, but their meals were prepared for them. They were allowed, if their conduct and medical condition were satisfactory, to go home for the week-ends. Also, as an additional inducement, they were granted a pocket-money allowance of sixpence a day. All patients who were entitled to sickness or disablement benefit continued to draw it. The arrangements were apparently as satisfactory and attractive as it was possible to make them, but the number of patients who took advantage of the scheme was not as large as had been hoped—viz., seventeen in the first summer, and twenty-three in the second. The colony was running for about six months each year, and there was accommodation for from six to eight patients at a time. Financially the gross cost was £134 the first year, this including initial cost of tools, etc., whilst the value of the produce grown (which was supplied to the sanatorium and valued at wholesale prices, or sold in the town for what it would fetch) amounted to £61. The second year, or rather nine months (for the scheme had to be given up owing to the mansion being let and the garden required by the new tenants), the cost was £139, whilst the value of the produce was £129. Nothing was charged to the scheme for the cost of the patients' maintenance at the sanatorium. Had the scheme continued for the whole twelve months, the cost would have been about one-fourth higher, whilst the receipts would have remained the same, there being no produce to sell during the winter months. Had it not been for the temptation to return to work in the town, due to the abnormally high wages, probably more patients would have wanted to avail themselves of the scheme. I believe that some such scheme is a very desirable addition to any sanatorium, and constitutes a fairly economical and beneficial method of prolonging sanatorium treatment. It is hoped another year to devise some similar arrangement, the patients working in the sanatorium grounds. At the same time it remains to be proved what proportion of patients will be induced to avail themselves of it. The consumptive colony is a sound idea, but has very definite limitations, and is probably not the last word in the treatment of consumption.

FROM JANE WALKER,
M.D.,
Medical Superintendent to the East Anglian Sanatorium.

It is very necessary to have clear views as to the real part which a colony is to play in the anti-tuberculosis campaign. The term "farm colony" as applied to a residential working community for consumptive persons is a misnomer. Farm work is an arduous, skilled occupation, and as such can be undertaken by but few tuberculous people during their treatment or after. There are two well-known sanatoria for working-class patients in this country, each with farms of some size attached; these are worked on a commercial basis at a reasonable profit, but on neither of them is a single patient or ex-patient employed. At these same institutions there are to be found ex-patients forming practically the whole of the nursing and domestic staff as well as those engaged in office duties and in gardening work. The great need for consumptives on returning to work is sufficient money to obtain a good supply of food and an occupation of a not too arduous description. "A light place in the country" seems generally the only suggestion that the medical practitioner in charge of the case is able to give, as an economic entity does not exist. A residential post with good conditions as to food and open air is the best occupation for the larger number of ex-patients in the first instance. Such posts would comprise the ordinary work in and out of the institution—servants, boot-boys, gardening, carpentering, tailoring, dressmaking, and such special industries as the district required. At Nayland, in connection with the East Anglian Sanatorium, a dressmaking establishment has recently been started on business lines. Before embarking on such an ambitious scheme it was tried on a small scale as part of the industrial side of the institution, and its success seemed to warrant a further extension. If this experiment proves successful we are planning a similar venture for men as boot-menders and boot-makers. In this case a beginning as an experiment has also been made at the institution. Colonies where consumptives can work happily and contentedly together are valuable, but in the present writer's opinion they should be a natural outcome of the work of some already existing institution, and they should not be launched out on their own as a new enterprise separate from the existing sanatorium and its medical superintendent.

FROM NOEL DEAN BARDSWELL,

M.V.O., M.D., F.R.C.P., F.R.S.E.

Medical Adviser to the London Insurance Committee; Late Medical Superintendent, King Edward VII. Sanatorium, Midhurst; Author of "The Consumptive Working Man."

Opinion is unanimous that something is needed to supplement sanatorium treatment; that it is idle to hope for permanent results under the prevailing system of a short course of institutional treatment, followed by a return to conditions which are the negation of all the requirements of the consumptive. Those who are seeking to render colonies a practicable proposition might well concentrate upon the following points: (1) The determination of the most suitable occupation to teach at the colony, bearing in mind that no occupation is of service unless it secures reasonable certainty of employment and a living wage. (2) The solution of the question of the care of dependents during the absence of the principal bread-winner for some six or nine months. (3) The source of the funds necessary to finance colony schemes upon a large scale, having in view the certainty that the cost per head for maintenance at a colony will not be appreciably less than that prevailing at sanatoriums, and that the average length of stay should be some six to twelve months. After a study of the colony question from these points of view, I would suggest to them the consideration of an alternative policy of subsidizing schemes of after-care, with a view to rendering home treatment really a continuation of sanatorium principles. The work of the almoners of some of our leading hospitals and of Dr. Varrier-Jones, in connection with the Cambridgeshire After-Care Association, gives a good indication of the lines upon which home treatment should be fostered.

FROM A. BOSTOCK HILL,

M.SC., M.D., D.P.H.,

County Medical Officer and School Medical Officer for Warwickshire; Professor of Hygiene and Public Health in the University of Birmingham.

It is ever becoming more apparent to those interested in the prevention and treatment of tuberculosis that the sanatorium, either as an educational or curative institution, has fallen short of expectations. No doubt there are instances of patients in the very early stages benefiting largely from a stay of two, four, or six months in a sanatorium, their freedom from tuberculosis being maintained after discharge; but, on the other hand, there are many who are less for-

tunate and whose prospects of ultimate cure, as a result of circumstances, are not so good. Too frequently patients return to an environment totally unsuitable for them, both in their homes and in their employment. In any comprehensive scheme for dealing with tuberculosis the colony for the tuberculous as an addendum to sanatorium treatment is an essential factor. Patients on their discharge from sanatoria are advised to obtain employment in the country, and it is impressed upon them that the nature of their work must be light, otherwise they will stand little chance of permanent recovery—in other words, unless suitable employment is found, public money will have been more or less wasted. But light work means a light wage, and it is in this connection, in order to counteract the temptation of the factory or workshop wage, that colonies will prove beneficial. Only selected cases should be drafted from the sanatorium to the colony, which should be of the simplest nature and under the supervision of the Tuberculosis Officer. The sexes should be separated. All branches of open-air labour should be taught and wages paid, and an endeavour made to make the institution self-supporting. Financial assistance may be required for families of married men, until the patients are so far recovered as to be able to command a living wage and obtain work conducive to their future health. In the colony, properly managed, there is a field of usefulness which has not yet been sufficiently exploited, especially in connection with the treatment of tuberculous school-children and young adults of both sexes. In addition to the farm colony, for instruction and treatment, Homes should be provided for the compulsory segregation of those suffering from advanced tuberculous disease, and who are obviously a source of infection to others in their homes.

From THOMAS D. LISTER,

M.D.,

Physician to the Mount Vernon Hospital.

I strongly disapprove of the establishment of unlimited colonies for the tuberculous while the present supply of cases from the "plague spots" that destroy resistance is kept up, and nothing is done to identify and clear them out. Owing to the abuse of catchword phrases as to measures of prevention and treatment being largely identical, a whole vicious circle of clinical centres has been established, and is continually enlarging. Demography of the disease is being ignored. Every new centre entails growing expense to the country. The worst tradition of every branch of the Civil Service, the creation of new work for new officials, and new

vested interests in the gift of the department, could not be better exemplified than by the manner in which tuberculosis as a cause of morbidity has been exploited. The interest of a department, usually for reasons of political precaution, is always greater than the public interest. By all means let us have colonies for the tuberculous, but only for the irreducible minimum. All modern work teaches us that, in tuberculosis, morbidity is determined by loss of resistance, and not by the mere fact of infection. In every case that qualifies by *illness from tubercle* for admission to the sanatorium, infirmary, colony, or whatever else may be invented, it is our duty to ask ourselves, "What was the cause of the loss of resistance?" It is a practical question, and difficult to answer; but it is not the ideal duty of the medical profession to look only for easy ways out of difficult questions. Academically, and subject to these considerations, I have myself advocated and planned something bigger than farm colonies for treatment. But I have not lost sight of the larger question of prevention, and do not believe in confusing the two. We cannot treat until we have failed to prevent illness.

FROM A. H. MACPHERSON,

L.R.C.P. & S. ED.

Physician-Superintendent of the Hairmyres Colony; formerly Physician-Superintendent to the Royal Victoria Hospital Farm Colony, Edinburgh.

It is sheer economic waste to treat certain patients for a few months only in a sanatorium. Experience has shown, and statistics conclusively prove, that relapse follows in a large percentage of cases on their return to former occupations. A continuation of treatment along less expensive lines is surely clearly indicated for those sanatorium patients likely to develop a recrudescence of the disease, and it is for this class of case that the farm colony proves its utility. *One* of the reasons for the designation "farm colony" was to enable the colonist to obtain employment without being labelled an invalid, thereby tending to reduce his market value. But, while farming operations form a distinctive feature, other industries are not excluded, such as forestry, with its various ramifications, market gardening, and industrial workshops, etc. Nor is any colony complete without an open-air school for children. Hairmyres Colony embraces the above features, and holds in it all the elements of success. It is capable of indefinite expansion. Patients that no longer require the services of a nursing staff are transferred to the colony, thus relieving pressure on the sanatorium. The scheme is a practical one, based on sound economic and educative lines. Its

object is so to treat and train a patient for a prolonged period under medical supervision and thus enable him to earn a livelihood under suitable conditions, the risk of relapse being reduced to the minimum. It conserves and maintains working capacity. The great variety of occupations created by the activities of a well-organized colony arouse and sustain interest, thereby reflecting on the physical and mental well-being of the colonist. That restless dissatisfaction, frequently a disquieting feature in sanatoriums, is seldom met with.

There are three strong arguments against the colony system which can be obliterated by legislation—viz., (1) inability to commandeer for treatment the very early cases of tuberculosis, (2) to retain those cases without interruption till a permanent arrestment, or otherwise, is effected, (3) the vexed question of dealing with dependants. None of these arguments, however, detract from the efficiency of the scheme for the attainment of the object for which it was created.

FROM GODFREY BROOKES DIXON,

M.R.C.S., L.R.C.P., L.S.A.,

Principal of the Municipal Sanatorium and Chief Tuberculosis Officer for the City of Birmingham.

The provision of colonies for the tuberculous in connection with all comprehensive schemes for the treatment of tuberculosis is a desirable thing. It should be quite clear, however, that they are but a unit in any scheme, and are not organized with the promise of doing what other institutions for treatment are alleged to have failed to encompass. Unless this is emphasized and borne in mind by enthusiasts disappointment will certainly follow. The rôle of such a colony should be twofold: (1) To provide a prolonged course of interesting treatment to such as are able to work, whereby they attain a high standard of physical fitness and raise their resistance to a level from which relapses and recrudescences should be less frequent; and (2) to provide training, if desired, in some fresh occupation at which a livelihood could be earned under hygienic conditions. Such colonies must be founded on a much broader basis than the "farm colony" of the past, which has been of limited utility where the majority of patients was drawn from a rural population, and has been even less useful for cases coming from an urban district. Agriculture, horticulture, and arboriculture, even temporarily as therapeutic measures, do not always appeal to the city dweller, except the wages attached are attractive or unless necessity compels him to adopt a new vocation. Some of this

repugnance might be overcome if gardening as an occupation for patients in sanatoria was more freely utilized. The growing and drying of medicinal herbs, and of plants for seed purposes, affords a useful and interesting occupation which can be undertaken by either sex, and has been adopted with some success, so far on a small scale in one of the Birmingham sanatoria. Such work may also be the means of providing a useful, healthy, and perhaps remunerative, hobby for tuberculous patients after leaving the sanatorium or the colony. Change of work should not be essential in the majority of cases, unless an occupation is dangerous from the health point of view, and it is better policy, economically and otherwise, to advise patients to follow their own occupation under reasonably hygienic conditions than to persuade them to learn another trade for which they may be ill adapted physically and temperamentally. For this purpose large towns and cities would doubtless find "sanatorium factories and workshops," where patients could follow their own or similar trades, of greater use than rural colonies, providing only agricultural work. In most cities well-lighted and efficiently ventilated factories have been built for the production of war material, and after a time some of these might be acquired and adapted in such a way that the tuberculous could work in them with advantage. Such an arrangement would not necessitate removal from home and friends, or the adoption of an uncongenial occupation which too frequently entails pecuniary loss.

FROM W. G. KINTON,

M.B., CH.B., L.S.A.,

Medical Superintendent, Mount Vernon Hospital for Consumption and Diseases of the Chest.

Sanatorium treatment has admittedly proved disappointing in many cases. The failures amongst suitably selected cases are largely due to the lack of a continuance in the practice of the principles of sanatorium life. Permanency of arrest of tuberculous disease depends to a very great extent upon the willingness, perseverance, and intelligent co-operation of the patient. Too frequently patients with all these attributes are by economic and other circumstances absolutely unable to live the kind of life most likely to maintain the improvement effected in the sanatorium. Prolonged care under strict hygienic conditions would lead to complete recovery in a certain percentage of cases which now speedily relapse owing to a return to unsuitable occupations and bad environments. In many more cases it would add years of useful life. There is a missing link in our chain of remedial measures. Sanatorium treatment must in many cases be followed by proper after-care, and this could be best provided in a colony.

There are, however, many intrinsic and administrative obstacles. It is notoriously difficult to persuade the town dweller, and especially when he is a skilled artisan accustomed to a high rate of wages, to adopt a country life and an outdoor occupation even for a year or two. Many of the colonists would wish to leave, without regard to medical advice, as soon as they thought they had acquired sufficient knowledge to make their services of any real commercial value. Adequate provision and accommodation would have to be made for the dependants of married patients, which would mean a considerable financial outlay, for which voluntary enterprise and probably State action is unprepared. The patients could be maintained at less cost in a colony than in a sanatorium, but it is extremely doubtful if colonies could be made self-supporting. Experiments on a small scale do not provide the difficulties which will present themselves if large numbers are to be colonized. The industries which could be established would necessarily be very limited. Suitable home industries might be fostered, but presumably the patients would of necessity be chiefly engaged in agricultural and horticultural work. It has not yet been demonstrated that "tuberculous labour" could efficiently run a farm on a large scale. The colonists would be assisted in obtaining suitable employment after completing their training, and in a large proportion of cases this would doubtless involve permanent residence in the country. The want of proper housing accommodation would make it almost impossible to find suitable hygienic surroundings for the discharged colonists. Without drastic housing reform, much of the good work of the colony would be absolutely wasted. A large proportion of patients now treated in sanatoria are in too advanced a state of tuberculous disease to yield good results. The success of the colonies will depend to a very great extent upon our ability to obtain a much greater number of really suitable cases. We must guard against any extravagant claims for this kind of after-care, remembering that it is only one link in a long chain of measures required to combat tuberculosis.

FROM EDWARD G. GLOVER,

M.D.,

Medical Superintendent Birmingham Municipal Sanatorium, Salterley Grange, near Cheltenham.

The *ex-sanatorio* pronouncements of officials who have, not unnaturally, an open-air bias, have little bearing on either the desirability or practicability of tuberculosis colonies. It is merely a truism to say that for certain consumptives—but by no means all of them, or even exclusively "early" cases—a prolonged stay under

hygienic conditions, with minimal supervision except as regards exercise, and with a minimum of economic worry, is the most desirable after-treatment. The tuberculosis colony is, after all, merely a kind of myxœdematous sanatorium, with increased potentialities for either tyrannical or incompetent supervision, and such experiments should not be allowed to obscure in a rather expensive manner the otherwise glaring fact that the after-conditions of consumptives form an essentially industrial problem, to be solved between them by the Trades Union, the Benefit Society, and the Employers Federation. With the present tendencies of democratic opinion, it seems likely that these separate and often warring elements will become welded together to form for each craft an association or guild which will take in hand the economic security and proper treatment of sick members. Then questions of continued full-pay or half-pay during sickness, of half-time labour on full-pay during prolonged convalescence, of hygienic factory and housing conditions, will be tackled with some probability of ultimate solution. Until then it seems likely that the tuberculosis colony, whether useful or merely elephantine, whether expensive or self-supporting, whether implanted on us bureaucratically from above or established tentatively as an offshoot of legitimate municipal activity, will remain an exotic. The last word in the discussion lies not with the medical bureaucrat, but with the artisan, and unless the colony conditions are made to suit his increasingly fastidious views on economic security and personal liberty, that verdict is likely to be an adverse one.

FROM NIVEN ROBERTSON,

M.D., D.P.H.,

Medical Superintendent, the National Sanatorium, Kent; late Assistant Tuberculosis Officer for the County of Somerset; formerly Resident Medical Officer of the Sidlaw Sanatorium, Dundee; Author of "The Treatment of Tuberculosis by Means of Spengler's Immune Bodies (I.K. Therapy)."

I restrict my consideration to the so-called "Farm" Colonies for the Tuberculous: the value of these is strictly limited. Cases eligible for admission are (1) Patients who desire to change their occupation and reap the benefit of hygienic management and instruction in a colony community; and (2) very early cases of tuberculosis. The number of working-class patients who come under these two headings is relatively small. Only a few can afford to change their manner of earning a livelihood. The majority of those who are willing to make the experiment will be young men who have not yet settled down to any skilled employment or regular trade. Unless early cases only are admitted it

is unlikely that the colony will be in any way self-supporting. The good results of sanatorium treatment have been in great measure spoi by the admission of unsuitable cases. We must not permit the same error to occur in regard to farm colonies. Some patients may prove suitable for admission for "curative" purposes, who, however, do not intend to change their occupation after discharge. The colony should cater for picked cases discharged from sanatoria. It is unlikely that one institution will be able to provide a sufficient number of such cases, and therefore the colony should represent a large geographical area. The selected cases from the several sanatoria in the area can then be sent to the colony. This colony could be adjacent to one of the sanatoria. The patients must work under skilled instructors, who will serve under the direction of the medical superintendent of the colony or of the adjacent sanatorium. All work must be carried out under medical direction. The colony must not degenerate into a cheap labour machine, but remain primarily as a curative centre. Profits, if obtained, would be applied to improvements in the colony. The committee in control must always regard therapeutics as the primary aim. The colony must never be dealt with as a profit-making adjunct to a sanatorium. In such a case the tendency is to supplant the patients' labour by ordinary skilled labour. At the National Sanatorium at Benenden, in Kent, the patients perform the work of a farm colony on a limited scale, and from experience of the results obtained I am convinced that the best cure for early cases of pulmonary tuberculosis is healthy work in the open air under medical supervision. By a further stay at a farm colony more of the cases now discharged from sanatoria as arrested would become permanent cures. The farm colony must be included as an essential element in every complete tuberculosis scheme, but although the war has increased its national importance, yet its benefits must remain the privilege of the relatively few.

From J. E. ESSLEMONT,

M.B.,

Resident Medical Superintendent, Home Sanatorium, Bournemouth.

I feel convinced that a colony scheme, properly carried out, will prove the best means for the speedy and complete eradication of tuberculosis. To be successful, however, it must be made thoroughly attractive to patients, and must offer them a happier and fuller life, as well as better chances of recovery or amelioration, than they can get, as a rule, in the general community. The ideal colony would consist of a large village community, where patients of both sexes, of all classes and ages, and at all stages of the disease,

would be suitably provided for. The larger the colony the better, as more variety of occupation and interest could be provided to suit individual tastes. The normal residential unit should be the patient's home, rather than the tuberculosis institution; each "home" accommodating patients of different ages, and of both sexes, under the charge of responsible House Mother and Father. Several "families" might possess a common kitchen, dining-room, etc. I believe this plan would prove much more satisfactory than attempting to segregate the sexes. For acute or advanced cases a nursing-home or suitable hospital accommodation would be necessary. Special pains should be taken to provide appropriate and congenial occupations for the colonist-patients. Hours of work should be regulated according to the capacity of the individual, and all labour paid for in proportion to its market value. Ample provision should be made for the education of children, for hygienic instruction, for the training of patients in arts and crafts, and in all that pertains to good citizenship. There must also be proper provision for healthy amusements and religious worship. Self-government should be introduced as far as possible, in conjunction with expert advice and direction, and the residents must be encouraged in every way to take an interest and pride in the welfare and prosperity of their colony. The general lay-out of the village should be arranged on garden city lines, and all buildings, residential and other, must be designed and furnished with a view primarily to health, thorough ventilation and ease in cleansing. Were a sufficient number of such tuberculosis colonies established it would become possible, I believe, without much hardship, to segregate all infectious cases out of the general community, and thus put a stop to the spread of tuberculous disease.[1]

[1] For a fuller discussion of this subject the writer would direct attention to his Brochure on "Garden Cities for Consumptives: A National Scheme Outlined," published by The Scientific Press, Ltd., Southampton Street, Strand, W.C. 1, price 3d.

ORIGINAL ARTICLES.

STATE CONTROL OF TUBERCULOSIS.

By FREDERICK KINCAID,
M.R.C.S., L.R.C.P.,
Medical Superintendent, Matlock Sanatorium; Medical Superintendent, Derbyshire Sanatorium; Tuberculosis Medical Officer, Derbyshire.

The minute living organisms which are responsible for most of the diseases which threaten the life of man constitute a far more serious menace to the human race than is appreciated. The invisibility, the omnipresence, the invulnerability and the amazing powers of reproduction of these lowest forms of living matter give them a perilous advantage in their hostility to the higher forms of life, and most of all to the highest of all—namely, man, whose complexity of form and habits of life make him a peculiarly susceptible prey.

No great stretch of imagination is required to picture the possibility of the stealthy destruction of the entire human race by its own earliest protagonists. It seems probable, in fact, that such an Armageddon has been prevented only by the action of natural selection. This deals very hardly with unicellular types, and thus keeps them, to some extent, in subjection to the multicellular types which are more immune to its action, and still more so to the gregarious types, of which man is one, these last being in the highest stage of protection from Natural Selection.[1] But this possible defence of man against the germ peril is theoretical only and, however plausible, should not be relied upon as making unnecessary any serious action on the part of a community which is threatened with extinction.

Of all the enemies of man, the Tubercle Bacillus is perhaps the most dangerous. Tuberculosis is more widespread than any other disease, and much more harmful, in that, apart from the fact that it is responsible for the majority of deaths, it has a peculiarly crippling effect, rendering very large numbers of people inactive and useless, often for long periods. The disease is almost universal, almost everyone being invaded by these bacilli at some period, and usually in the earliest period of life. They are apt to remain latent or dormant, sometimes for years, and then, when some other cause makes conditions more suitable for them or weakens the defence, to increase and become

[1] See "Instincts of the Herd in Peace and War," by W. Trotter, published by T. Fisher Unwin.

active and to poison and destroy. Fortunately, they do not produce definite disease in every person whose tissues they enter. Often the healthy conditions they find, or the strength of the natural specific resistance to them, prevents their development and leads to their speedy destruction.

This fact points the way to Prevention and also to Treatment. That is to say, it behoves every individual, from his earliest youth, to defend himself against this scourge by living such a healthy life that it is powerless to affect him; and if he has been born with a weak natural specific resistance to the disease, all the more must he devote his attention to doing everything which is good and avoiding everything which is bad for his general health. It is not suggested that every individual should become a faddist about his own health—nothing, not even disease, could be worse than this—but it is strongly urged that everyone should learn to enjoy good health in the fullest sense, and to cultivate pleasure in a healthy environment, and discomfort in, and dislike of, unhealthy surroundings and habits. Also, in the treatment of the disease it is obvious that the chief aim must be to support and improve the general health by a rigidly hygienic life, so that the body conditions become unsuitable for further development and activity of the organisms, and the resistance to their poison is increased and strengthened.

But the matter is grave and urgent, and should not be left dependent on the sense or lack of sense of each individual.

In this country, and in many others, attempts are being made to deal with the problem of tuberculosis, but in none is any really complete and comprehensive scheme yet in existence. The measures now in force in this country are slipshod and inadequate. Prevention, though much talked of, is scarcely attempted in practice, and treatment is haphazard, depending on the consent of the patient, the widely differing views of the medical profession, and the funds available. The success of these measures has been, therefore, very small in comparison with the very large sums of money spent.

The Government desired that every County Council should undertake a scheme of its own for the prevention and treatment of tuberculosis in each county, but it has not made it obligatory for them to do so, and, though most counties are doing something, there is no general instruction as to the details of such schemes, enforcing correlation and uniformity. In fact, there are the widest differences, so that no useful comparison can be made between the special reports issued by the various county authorities, and the figures obtainable for the country as a whole are, in many respects, misleading and valueless as statistics.

For instance, notification is compulsory all over the country, but—

and this applies to Tuberculosis Medical Officers as well—some doctors notify cases on the merest suspicion, whereas others do not notify except with bacteriological proof. As another instance, "domiciliary," "dispensary," "sanatorium," and "hospital" treatments mean quite different things in one county to what they indicate in another, so that the figures published do not bear comparison and cannot be summed together.

For all these reasons it follows that much of the large amount of work which is being done is wasteful and imperfect, and it will continue to be so as long as there is no competent central authority directing it. The whole question of Tuberculosis has been treated too much from a sentimental attitude and too little from an economic point of view. The existing system in this country allows the nation to pat itself on the back because of all that it offers to the poor consumptive, but this is not the way to stop the disease, and, where the damage and the danger are so great, nothing whatever should be allowed to stand in the way of a clear, hard, complete, and definite plan of attack, free from all sentiment and superstition, and with the welfare of humanity as its object rather than the welfare of individuals, however unfortunate.

A primary necessity for such a comprehensive scheme is State Control of Tuberculosis. State control of the disease does not necessarily mean state control of the various hospitals, sanatoria, and medical and nursing staffs. This is another question which need not be entered into here, except that control over methods of diagnosis and of treatment are involved to the extent which is required to establish and maintain uniformity. That is to say, it should be authoritatively laid down what exactly constitutes notifiable tuberculosis and what exactly is meant by the various forms of treatment which have been mentioned. But state control of this disease, if not of all disease, is absolutely essential if any serious attempt at control is to be made at all.

This means control over all persons notified as tuberculous, including compulsory segregation and compulsory treatment, or whatever is necessary. If such a scheme were properly carried out there would be no real hardship to any individual. Patients would merely be (whether rich or poor) under compulsion to take the best possible chance of recovery and, during the period of their inability to occupy their proper place in life, to avoid interfering with the ordinary activities of others, and possibly infecting them with tuberculous disease. It seems obvious that such compulsion could mean nothing but incalculable benefit to everyone, including the patients, and that there could be only one name for any outcry about interference with liberty or hardship to a suffering fellow-creature—namely, misguided sentiment.

The War offered us a unique opportunity for controlling sickness, and in particular tuberculosis. If conscription had been carried out at the commencement, and if all groups had been enlisted without examination, the nation would have been in a position to control all sickness existing amongst its active manhood. Medical examination and classification should have been done after enlistment and not before, and those found unfit from any cause should not have been refused, nor those becoming unfit after enlistment discharged, but they should have been retained under military discipline and given medical treatment according to their needs. The carrying out of such a comprehensive scheme would not have been any more costly than the sum of the whole existing makeshifts and overlappings. Moreover, especially in regard to the sanatorium treatment of tuberculosis, the value of military discipline would have been incalculable. This opportunity has been allowed to pass unused, and at a time when the necessity for the building up of the health and strength of the nation and the prevention of spread of disease are more vitally urgent than they have ever been.

A fresh reason appears for pressing the need for state control, particularly of tuberculosis. It seems probable that before long a Ministry of Health will come into being. Presumably the functions of such a Ministry will be to organize and direct universal and uniform measures for the prevention of disease, and it is submitted that any such measures are foredoomed to failure unless they include control over all diseased persons, such control to include compulsory segregation and compulsory treatment, particularly, but not only, of those suffering from infectious diseases. The reason for including non-infectious cases is that they, as much as the others, if allowed to remain ill in their own homes and to decide whether or not they will be treated and how treated, have a profoundly deleterious effect, by interfering with the ordinary lives of persons who are incompetent to help them towards recovery, and by creating a morbid and unhealthy interest in the details of their ailment which is mentally and morally degrading to those surrounding them. Further, they cannot get the best treatment under home conditions, and the value of their case is lost to science, since the doctor can have no assurance as to how far his instructions are carried out or as to the correctness of the observations which are made by untrained persons.

Under a system of complete state control it would cost the nation far less to maintain health than it does now to maintain disease. Also, it would be an enormous gain to reverse the present position and make Health more desirable and more interesting than Disease.

Whilst in no way desiring to minimize the importance of infant welfare, about which much has been said in connection with the pro-

posed establishment of a Ministry of Health, it is urged that tuberculosis also forms a subject of the greatest importance, and that a special department of the Ministry would be necessary in order to deal with it adequately. The question of the prevention of tuberculosis is bound up with those of child welfare, of physical training, of housing, of food supply, and, indeed, with all matters affecting the general health of the community, but also, and specially, with the compulsory segregation and compulsory treatment of all affected persons.

THE DOMICILIARY TREATMENT OF TUBERCULOSIS.

By OSCAR HOLDEN,
M.D., D.P.H.,
Clinical Tuberculosis Officer and Bacteriologist to the County Borough of Southampton.

Over a ninth of the total death-rate in the United Kingdom is due to tuberculosis in one form or another. The monetary expenditure upon its treatment and prevention has amounted to many millions sterling since the inception of the National Insurance Act of 1911. However, pulmonary tuberculosis is as rife as ever, and the death-rate shows little alteration. Any decrease is in the nature of the cyclic phenomenon seen in all the mortality curves of the infectious diseases.

Large numbers of tuberculous soldiers, the majority of whom are infective, are returning home from the various fronts. Old latent cases have been relighted by the rigours of a trying campaign which, if continuing in their former civil mode of life, would have remained quiescent. The magnitude of the problem is therefore increased.

In any scheme of preventive measures it is a first principle that cases which spread infection should be isolated. The sections of the National Insurance Act of 1911, and the large State grant set aside for the domiciliary treatment of pulmonary tuberculosis, show that this fundamental axiom has been disregarded. In the actual working of these measures the error has been accentuated. Instead of effecting any improvement in these conditions, the Tuberculosis (Domiciliary Treatment in England) Order, 1916, has still further increased the possibilities of leakage. Again, any scheme aiming at the eradication of tuberculosis must include everyone—insured and their dependants, and also non-insured.

In my opinion too much attention is being given to early cases, and this to the detriment of the care of more advanced cases. More than

60 per cent. of the established sanatoria specify that they take early cases only. Hospitals for advanced cases are few. Pavilions set aside in the grounds of existing isolation hospitals, in the majority of cases, are unsuited for the purposes aimed at. In many of these, early and advanced cases cohabit day by day: a wrong principle altogether. Dispensaries are far more useful, but they leave untouched the problem of the advanced case who is too ill to attend, and, perforce, lying in his own home, frequently under bad sanitary conditions, and always ready to serve as a focus of infection. Human nature is proverbially erratic. Many papers have been written upon what a domiciliary patient should do or should not do. Some authorities consider that a few weeks' residence in a sanatorium for educational purposes leaves the prospective domiciliary patient thoroughly armed to lead henceforth a blameless hygienic life. As a placebo to a physician's conscience such measures may be satisfactory, but they fail signally in actual practice. General practitioners with domiciliary patients, and tuberculosis officers in the habit of visiting such patients, know quite well the fallacy of such reasoning. Constant, scientific, strict and kindly control is essential. This cannot be carried out at home in the ordinary class of patient.

Pulmonary tuberculosis is infective in two ways: (1) By the dissemination of tuberculous sputum in the breath by coughing, etc. (2) By the distribution of tuberculous bacilli in the fæces. Advanced cases with no sputum—and these cases are especially met with in hypersensitive women and children—will show tubercle bacilli in the fæces. In a series of a hundred cases examined by the writer, eighty-two gave numerous tubercle bacilli in the fæces. In every case they were separated by the antiformins method and cultivated on Dorsett's egg medium. This growth in eighty-one cases was identical with growths of human bacilli obtained from the sputum. In one case—a child with tubercular enteritis—the organism was bovine. Of the eighty-two cases showing tubercle bacilli in the fæces, 54 per cent. died within four months. The remainder are still alive. None of the negative cases have died. It is fallacious to consider any advanced case non-infective unless the fæces have been examined. The sputum may, from ignorance or false delicacy, be swallowed.

Cases of pulmonary tuberculosis placed on domiciliary treatment may come under one of three heads: I. Those working but unwilling to attend a dispensary or enter a sanatorium. II. Those who have had sanatorium and dispensary treatment and have progressively got worse. III. Those who, on a first visit, are too ill to benefit by either sanatorium or dispensary treatment.

Cases under Class I. may, or may not, be infective. Those in Classes II. and III. are invariably infective. As the tuberculous

disease advances tubercle bacilli appear in the sputum and the working capacity declines. Then follows decline of income and concurrent deficiency of nourishment. The latter soon causes increased rate of progression of the disease. Putting a patient upon domiciliary treatment is, in many cases, a polite intimation to him to prepare for dissolution.

So as to satisfy myself as to the relation between the stage of the disease, presence of tubercle bacilli in the sputum, and working capacity, I have investigated a number of cases from this aspect. The subjoined table indicates the result:

TABLE I.—INDICATING THE WORKING CAPACITY OF TUBERCULOUS CASES.

Stadium T. G.	Cases.	T.B.+	Per-centage.	T.B.−	Per-centage.	Working Capacity.[1]		
						A.	B.	C.
I.	662	129	19·5	533	80·5	401	247	4
II.	611	289	47·3	322	52·7	303	272	28
III.	870	616	70·8	254	29·2	210	304	350
	2,143	1,034		1,109		914	823	382

Early cases without sputum, or with non-infective sputum, are not cases requiring isolation. The majority can continue at work and earn full wages. But those with infective sputum and fæces, not able to work and of no economic value to the community, are obviously those who require isolation until they become non-infective or die. Yet it is from this class that the majority of domiciliary patients are drawn.

Pulmonary tuberculosis in its early stages is a curable disease; but a healed or arrested case is very prone to reinfection. It is admirable to cure early cases, but it is imperative that chances of reinfection should not be permitted. Such is unavoidable under the existing conditions. There is no sense in sending early "contact" cases into sanatoria, when the primary focus of infection remains at home under domiciliary treatment. This incongruity is by no means infrequent.

Poorer inhabitants of large towns, in spite of educational efforts, remain careless and indifferent. There are, of course, exceptions. Also among the general public there is an exaggerated opinion of the infectivity of the disease. This leads often to undesirable concealment. Advanced cases at home are frequently found—bed and all in the common living-room. Infection of children and others in the same room can be caused by respiration and ingestion. Where a family of

[1] A indicates capacity unimpaired; B, working capacity impaired for medium, and totally incapacitated for heavy, work; and C, total incapacitation.

six or seven have two rooms to live in, infection cannot be avoided, however conscientious the patient may be. The relation between housing conditions and the incidence rate and death-rate from tuberculosis is very close.

In investigations into the family histories of notified tuberculosis patients a large number of previous deaths from tuberculosis are met with.

A series of 3,220 was taken, of which 1,515 gave a definite tuberculosis history, 1,753 cases in the first generation and 848 in the second.

TABLE II.—INDICATING THE FAMILY PREVALENCE OF TUBERCULOSIS.

Relation.	With T.B.	Died of Tuberculosis.	Total Number of Cases.
Father	41	304	345
Mother	88	188	276
Sister	154	257	411
Brother	121	377	498
Husband	25	34	59
Wife	22	16	38
Children	65	61	126
	516	1,237	1,753

The incidence upon sisters and brothers is large, owing, firstly, to the larger amount of available material to be infected, and, secondly, to the fact that two or more sisters or brothers may share the same bed or inhabit the same bedroom. Overcrowding is commonest in a large family of brothers.

In the remoter relations of tuberculous patients the aunts and uncles carry on the inheritance from their childhood days.

TABLE III.—INDICATING PREVALENCE OF TUBERCULOSIS AMONG DISTANT RELATIONS.

Relation.	With T.B.	Died of T.B.	Total.
Grandfather ..	0	87	83
Grandmother ..	0	83	87
Aunts	20	234	254
Uncles	20	234	254
Cousins	15	138	153
Nieces, nephews, etc.	4	13	17
	59	789	848

Out of a total of 3,220 patients investigated, 5,821 cases occurred, and of these 3,795 have got pulmonary tuberculosis and 2,026 have died of the disease.

In another inquiry as to the actual numbers of cases occurring in families the following figures were obtained:

TABLE IV.—INDICATING PREVALENCE OF TUBERCULOSIS IN FAMILIES.

One.	Two.	Three.	Four.	Five.	Six.	Seven.	Eight.	Ten.	Total Families.
359	189	87	26	26	4	3	4	1	699

The patients under consideration at the time are excluded. In the 699 families no fewer than 2,018 cases of pulmonary tuberculosis arose. In making allowance for defections of memory, erroneous diagnosis, deaths from accidents, deaths from other causes, such as asthma, bronchitis, or pneumonia, which not infrequently pervade the closing scenes of chronic tuberculosis, it is no exaggeration to say that the number of potential cases is greater than the number of kinetic cases, and the notification figures only give about half the actual number of cases at any given time in the population.

Domiciliary treatment, carried on as at present, is a serious danger to the health of the community. General practitioners cannot, in the nature of things, give sufficient time to these patients to instruct them fully and see that all precautions are carried out. At the most infective time of the illness adequate help, nursing, and feeding are unobtainable. Small wonder, then, that the tuberculosis regulations have failed in their object. The whole control of tuberculosis should be in the hands of one authority with powers to enforce any measures necessary for the prevention of spread. Colonies, as far as they go, are excellent, but presumably a patient to become an inmate of such a colony must be able to work. The larger number of domiciliary patients fall outside that category. Colonies to include *all* cases of pulmonary tuberculosis in an infective stage would be a big advance, and would cost less to maintain than the present system. I am indebted to Dr. Lauder, M.O.H. for Southampton, for permission to use the material from which the above figures were obtained.

INSTITUTIONS FOR THE TUBERCULOUS.

THE PAPWORTH HALL TUBERCULOSIS COLONY.

PAPWORTH HALL COLONY has been designed for the purpose of treating early, middle, and advanced cases of pulmonary tuberculosis, including ex-soldiers discharged from the army. It involves the recognition that "treatment" must embrace much more than is usually conveyed by the term "medical service." The problem is highly complex. Considerations of hygiene, pathology, psychology, and sociology are mixed up in a hash to be met with in no other medical problem since leprosy has been practically eliminated from the modern list of diseases. Consequently, at Papworth arrangements are being made for the training of ex-soldiers in various trades and occupations, and the social side of all forms of treatment is being fully studied. Part of the model village has already been acquired, and is in course of development, and this will form the nucleus of a community in which fierce competition will be rigidly excluded, and where a man capable of doing 50 per cent. of the work he was originally able to do can still exercise his talents without detriment to his health. Arrangements are also being made with lecturers and demonstrators from the University of Cambridge to give courses of instruction. Lectures will be followed by practical demonstrations in order that the consumptive's mind as well as his hands may be trained. Very advanced cases and patients with active tuberculous disease will be housed in a central institution, where they will be cared for and surrounded by comforts and amenities of life which are not to be found in the crowded streets of our great cities. Prolonged treatment will be available for those who will benefit thereby; while an environment which will tend to render the descent easy will be available for those for whom no hope of recovery can be entertained. The Papworth Colony is thus the result of an attempt to extend and expand in all directions the treatment meted out to patients at a sanatorium. The ideal aimed at is well summed up by Dr. Louis Cobbett: "The long period of residence contemplated will make it necessary to provide for the occupation of the inmates in ways not yet attempted. Games and recreation will not suffice, but serious work will be demanded to which a man may give himself daily without violence to his self-respect, and which even may be brought to contribute materially to the cost of his living. The new sanatoria, then, starting from small beginnings, should aim at becoming industrial colonies, furnished with workshops, where handicrafts, as varied as possible, and including those, if any, which are characteristic of the district, may be followed, and provided, above all, with ample grounds for gardening and agriculture. At the same time the needs of those with advanced disease must be met by liberal provision so that they can pass their days as pleasantly as is possible. In such institutions it seems possible to make a new beginning to deal directly with the problem of the prevention of tuberculosis by attacking the disease at its very source."[1]

[1] See article by Dr. Louis Cobbett on "Tuberculosis and the War," in *British Journal of Tuberculosis*, Vol. XII., No. 1, p. 16.

NOTICES OF BOOKS.

OPEN-AIR SCHOOLS.

TUBERCULOSIS is likely to remain as one of the most deadly maladies afflicting mankind so long as the campaign against this entrenched foe neglects to concentrate forces which shall secure the protection of childhood. Ten years ago the Editor of this journal wrote: "The study of tuberculosis in early life, as well as the organization of ways and means to secure the prevention and arrest of the disease, are but in their beginnings."[1] Considerable progress has been made during the past decade in various countries, but among British peoples the advancement has been limited.[2] Among agencies dealing with tuberculous, tuberculously disposed, and other delicate children, the Open-Air School must be given a foremost place. A valuable monograph on Open-Air Schools has just been issued by the Bureau of Education of the Department of the Interior of the United States of America.[3] It has been prepared by Mr. Sherman C. Kingsley, whose fine service in connection with the Elizabeth McCormick Memorial Fund of Chicago "to improve the condition of Child Life in the United States" is well known to workers on both sides of the Atlantic. Dr. Fletcher B. Dresslar, special agent of the Bureau and Professor of Health Education in George Peabody College for Teachers at Nashville, Tenn., has been associated with Mr. Kingsley in the production of this notable work, and they have been assisted by Miss Mabel Brown Ellis. The work is one which we commend to the study of all medical advisers, school medical officers, superintendents of sanatoria, educationists, and all responsible in any way for the organization and administration of measures making for the protection and betterment of childhood. Commissioner P. P. Claxton, who furnishes the "letter of transmissal," states that "the movement in this country for the establishment and maintenance of Open-Air Schools has been hastened through the initiative and financial assistance of various volunteer societies and private foundations for the prevention of tuberculosis or for the general conservation of public health." The Open-Air School has accom-

[1] See "Tuberculosis in Infancy and Childhood: its Pathology, Prevention, and Treatment." By Various Writers. Edited by T. N. Kelynack, M.D. London: Baillière, Tindall and Cox. 1908. Price 12s. 6d. net.

[2] A description of the chief agencies and institutions dealing with tuberculous and tuberculously disposed children will be found in "The Year-Book of Open-Air Schools and Children's Sanatoria," published by Messrs. John Bale, Sons and Danielsson, Ltd., Oxford House, 83-91, Great Titchfield Street, Oxford Street, London, W. 1. Price 7s. 6d. net.

[3] "Open-Air Schools." By Sherman C. Kingsley and F. B. Dresslar. *Bulletin*, 1916, No. 23. Bureau of Education, Department of the Interior of U.S.A. Pp. 283. With 103 Illustrations, List of Open-Air Schools in America, and Selected Bibliography. Washington, U.S.A.; Government Printing Office. 1917.

plished invaluable service for delicate and afflicted children, but its educational influence is extending far, for, as is well said in the introduction to this work, "No one with an unbiased mind can read the accounts of the history of Open-Air Schools and the results they have already achieved without in some measure forecasting the time when the same conditions and the same sort of care will be extended to the whole school population." The volume provides a history of the evolution of the Open-Air School movement, gives details regarding the establishment, equipment, conduct, and results of these educational and health-building centres, and furnishes descriptions of Open-Air Schools in America, Great Britain, and other countries. The work is thoroughly practical, and the numerous plans and pictures add greatly to its attractiveness and value. We could wish that some arrangement might be made whereby a copy of this informing and stimulating *Bulletin* might be available for the study of medical officers and teachers, and all managers of schools in this country.

THE EDUCATION OF THE TUBERCULOUS PATIENT.

In the effective treatment of a tuberculous subject doctor and patient must be loyal co-workers. The medical adviser and superintendent can accomplish but little unless the tuberculous sufferer plays the game and co-operates with the powers seeking to secure his restoration to health. But the willing spirit must be enforced by an educated mind. The doctor must realize the patient's standpoint, and the patient must understand the scientific outlook from which the doctor views the case. In the management of tuberculous cases in private practice, or when undergoing institutional treatment, there is but rarely that enlightened, sympathetic, educational care and control which are essential for the attainment of the best results. A valuable work, which should do much to increase co-ordination of efforts and effective co-operation between doctor and patient, has been prepared by Dr. D. MacDougall King.[1] The author writes not only as a medical practitioner, but as a tuberculous patient, and thus provides a treatise which is of exceptional interest and much practical value. He claims that, generally speaking, patients do not understand the principles underlying their treatment, and are not adequately instructed in the significance of the reasons on which hygienic management is based. The work is written in a vigorous battle-form spirit, with lucidity and attractiveness of presentation, and scientific foundations are explained with simplicity and a skilful, popular exposition which will make the book acceptable to every thoughtful man and woman. Dr. King's volume is just the guide which many a doctor will find it well worth his while to place in the hands of his intelligent tuberculous patients. It is, moreover, a work which doctors may well consider for their own edification, and to all who are called upon

[1] "The Battle with Tuberculosis, and How to Win It: A Book for the Patient and his Friends." By D. MacDougall King, M.B. Pp. 258. With coloured frontispiece and 7 other illustrations. Philadelphia and London: J. B. Lippincott Company. 1917. Price 6s. net.

to advise tuberculous subjects or to lecture to nurses, teachers, and members of the general public on tuberculosis the book will be of exceptional service.

THE DISCHARGED CONSUMPTIVE SOLDIER.

The prevalence of active tuberculosis among large numbers of combatants and discharged sailors and soldiers is a national question of pressing importance. Mr. Thomas Denman has written a powerful plea for the discharged consumptive soldier.[1] The facts of the present situation are effectively summarized. Dr. H. de C. Woodcock, who furnishes a foreword, suggests that "over two hundred thousand tuberculous fighters will require treatment." Mr. Denman's brochure provides a strong case for the establishment of colonies. We commend this suggestive contribution regarding constructive efforts to all workers for the betterment of tuberculous sufferers.

HANDICRAFTS FOR THE HANDICAPPED.

In the treatment of the tuberculous rest and exercise are two of the most important factors requiring constant consideration and supervision. In regard to the conduct and regulation of exercise serious mistakes have been made by unimaginative medical advisers and enthusiastic medical superintendents of sanatoria ignorant of psychological influences governing their patients. Undoubtedly much discredit has been brought on sanatorium treatment by the conduct of mechanical pedestrianism and enforcement of useless and uninteresting tasks. Most of the work systems which have been permitted in institutions for the tuberculous have been lacking in human interests. It is not going too far to insist that every sanatorium for tuberculous cases should have its workshops and schools for handicraft. We earnestly commend to all doctors and nurses and managers of hospitals and other centres, where diseased bodies and disordered minds are undergoing treatment, a study of a notable manual on "Handicrafts for the Handicapped," by Dr. Herbert J. Hall and Miss Mertice M. C. Buck.[2] The volume is a practical guide to certain crafts which have been proved to be of special value to handicapped workers. Details are given regarding basketry, chair-seating, netting, weaving, bookbinding, cement working, pottery, and light blacksmithing. Descriptions are provided of methods and means for instruction. The work is eminently practical, and should hasten the coming of a new and hopeful era in the treatment and after-care of physically and mentally afflicted men and women.

[1] "The Discharged Consumptive Soldier: His Treatment in Relation to the Treatment of Consumption as a Whole." By Thomas Denman, Clerk to the Brighton Insurance Committee. With a Foreword by H. de C. Woodcock, M.D., Principal of the Central Dispensary for Tuberculosis and Diseases of the Chest, Leeds. Pp. vi+40. London: John Bale, Sons and Danielsson, Ltd., 83-91, Great Titchfield Street, Oxford Street, W. 1. 1917. Price 1s.

[2] "Handicrafts for the Handicapped." By Herbert J. Hall, M.D., and Mertice M. C. Buck, authors of "The Work of our Hands." Pp. xviii+155, with numerous illustrations. New York: Moffat, Yard and Co., 116-120, West Thirty-second Street. 1916. Price $1.25 net.

THE MECHANISM OF MUSCULAR MOVEMENT.

Kinesiology is the science of bodily movement, and it is a department of educational and medical work which no doctor can afford to neglect. We particularly commend to all medical advisers engaged in tuberculosis work, or called to deal with the physical training of human subjects, Professor Bowen's very informing and suggestive treatise on "Applied Anatomy and Kinesiology."[1] It is the first volume of a new "Physical Education Series" of monographs issued under the general editorship of Major R. Tait McKenzie, B.A., M.D., M.P.E., Professor of Physical Education and Physical Therapy in the University of Pennsylvania at Philadelphia, whose fine work in this country during war days has been invaluable for the improvement of military service. Professor Bowen's treatise is a particularly timely contribution to the scientific study of the complex human machine. "Function determines structure," as is specially illustrated in connection with muscular work. All who seek to direct bodily activities should be acquainted with the facts and principles of Kinesiology as set forth in this illuminating and fascinating book. Professor Tait McKenzie and Professor Bowen are accomplishing notable service both for the principles of education and the art of medicine. The work deals with general principles of muscular structure, action, and control, and affords detailed consideration of all movements in connection with the upper and lower extremities, the trunk, breathing, and the maintenance of the upright position. In the section on General Kinesiology, there are chapters on Team Work among Muscles, Gymnastic Movements, Play, Games and Sports, and Industrial Occupations. The illustrations are numerous and in every way admirable.

WORKS FOR MEDICAL ADVISERS AND VOLUMES FOR REFERENCE.

The many friends of the late Sir Lauder Brunton will be glad to possess the second series of the "Collected Papers on Circulation and Respiration" of this great clinician and scientific investigator.[2] The work is one which will appeal to many readers of this journal. We would particularly direct attention to the articles on Amyl Nitrite, Cardiac Pain and Angina, Posture and its Indications, Rest and Massage in Cardiac Affections, Pleural Effusion, Exercise and Over-Exercise, Breathlessness, the Effect of Tobacco in Health and Disease, the Measurement and Regulation of Blood Pressure, the Treatment of Cardiac Disease, and Strain. The volume is a handsome one, the general get-up being of the best, and there is an excellent General Index and also an Index of Authors.

Appendicitis, particularly in the case of children, is often confounded with abdominal tuberculosis, and not infrequently cases of abdominal

[1] "Applied Anatomy and Kinesiology: The Mechanism of Muscular Movement." By Wilbur Pardon Bowen, M.S., Professor of Physical Education, Michigan State Normal College, Ypsilanti, Michigan. Pp. 316, with 189 engravings. Philadelphia: Lea and Febiger, 706-710, Sansom Street. 1917. Price $3.50.

[2] "Collected Papers on Circulation and Respiration." Second Series: Clinical and Experimental. By Sir T. Lauder Brunton, Bart., M.D., D.Sc., LL.D., F.R.C.P., F.R.S. Pp. xxi+719, with 256 illustrations. London: Macmillan and Co., Ltd., St. Martin Street. 1916. Price 5s. net.

tuberculosis are operated on under the impression that they are examples of appendicitis. Moreover, tuberculous patients sometimes are the subjects of acute, recurrent, and chronic inflammatory trouble in the vermiform appendix. Medical superintendents of sanatoria should always be alert in their remembrance of these facts. A particularly helpful clinical study of acute appendicitis has recently been issued by Mr. C. Hamilton Whiteford.[1] It deserves the careful consideration of all medical practitioners. The perplexities of diagnosis are lucidly explained, and the general principles of treatment presented in a form which is most practical.

Mr. Arthur Lovell has recently sent us a copy of his suggestive brochure entitled "New Light on Consumption."[2] The author holds that the primary influence in the production of pulmonary tuberculosis is "inadequate supply of oxygen in the particular organism that falls a victim to the ravages of the disease, due to condition of nose, throat, and chest." The work is a layman's effort to unravel the mysteries of vitality, reaction to morbid agencies, constitutional powers, and forces making for the maintenance of health. The book is unconventional, and will by some be considered heterodox, but it stimulates thought, and should be studied without prejudice. There is a chapter on State sanatoria, in which the view is expressed that "there must be a complete revolution in the methods of conducting sanatoria—private and public."

Medical officers and patients in sanatoria and elsewhere who take an interest in practical photography should make a point of securing the 1918 edition of the long-established and ever-welcome "'Wellcome' Photographic Exposure Record and Diary."[3]

Under the title of "New Towns After the War" there has just been issued a highly suggestive booklet which admirably expresses the arguments in favour of the establishment of Garden Cities.[4] It is a work which merits the consideration of those who are contemplating the establishment of colonies for the tuberculous.

[1] "Acute Appendicitis: Practical Points from a Twenty-five Years' Experience." By C. Hamilton Whiteford, M.R.C.S., L.R.C.P., late Specialist in Surgery, Military Hospital, Devonport. Pp. 72. London: Harrison and Sons, 45, Pall Mall, S.W. 1. 1917. Price 4s. net.

[2] "New Light on Consumption." By Arthur Lovell, author of "Ars Vivendi," "Deep Breathing," etc. Pp. 140. London: Simpkin, Marshall and Co., Ltd., 4, Stationers' Hall Court, E.C.

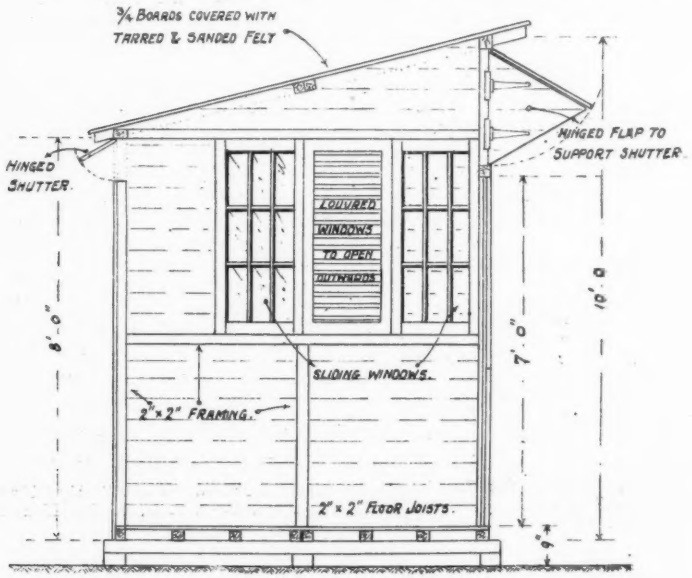
[3] "The 'Wellcome' Photographic Exposure Record and Diary" is published by Messrs. Burroughs Wellcome and Co., Snow Hill Buildings, Holborn, E.C. Price 1s. net.

[4] "New Towns After the War: An Argument for Garden Cities." By "New Townsmen." Pp. 84. London: J. M. Dent and Sons, Ltd., Aldine House, Bedford Street, W.C. 2. 1918. Price 1s. net.

PREPARATIONS AND APPLIANCES.

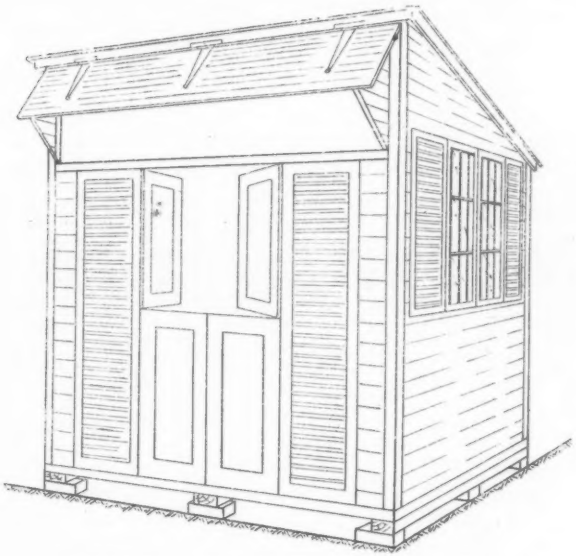
A NEW SHELTER FOR THE TUBERCULOUS.

DR. J. E. BULLOCK, the Acting Tuberculosis Officer for the County of Northants, has designed a new and inexpensive form of shelter for the open-air treatment of tuberculous cases. The shelter is designed to provide extra accommodation in which a patient who is engaged in work during the day can sleep at night throughout the year. It is made seven feet wide, so that a bedstead placed along the back can



be freely moved. The opening of the windows can be regulated according to the state of the weather; the louvred shutters prevent rain penetrating in wet weather; and, similarly, the opening of the doors in front is protected by louvred shutters. Ample top ventilation is provided by means of shutters near the roof which can be easily regulated. The cost of the shelter is £16 5s. at present war prices. It is made in sections which can be easily taken down and

re-erected wherever there is space.[1] The plan has been submitted to the Local Government Board, and has been approved.



A NEW FORM OF SHELTER FOR THE TUBERCULOUS.

THE SARANAC THERMOMETER.

Thermometry is of the utmost value in the diagnosis and treatment of tuberculosis. Every tuberculous patient should be instructed in the way in which reliable records are to be taken and registered. Unfortunately, many of the thermometers in common use are slow in action, indistinctly marked, difficult to adjust, and oftentimes are actually defective. One of the best and most reliable forms of thermometer is that introduced under the name of the B.D. PRESTO

THE B.D. PRESTO SARANAC THERMOMETER.

SARANAC THERMOMETER. We have received a specimen from the manufacturers, Messrs. Becton, Dickinson and Co., of Rutherford, N.Y.

[1] Full particulars regarding the supply of the shelter can be obtained on application to Dr. J. E. Bullock at Northampton.

The scale is marked for 12° (94° to 106°) instead of the customary 16° or 20°. The fractional divisions are well spaced out and can be easily estimated. The markings above the normal are indicated in red. By an ingenious patented device the resetting of the mercury is facilitated, and consequently the risk of breakage minimized. Each thermometer is provided with a certificate testifying to its accuracy. No better instrument for sanatorium and hospital work can be obtained.[1]

EDUCATIONAL LEAFLETS AND POSTERS.

Much valuable work can be accomplished towards securing the prevention and arrest of tuberculosis by a wise use of publicity methods. In America, attempts to reach the intelligence and conscience

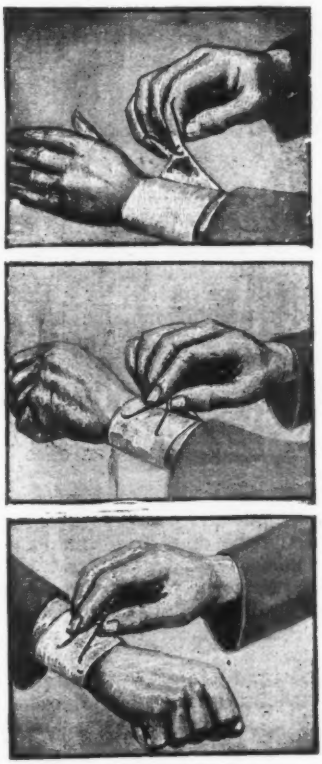
of the average citizen have met with great success. It is to be regretted that so little is being done in this country to instruct the man in the street, the woman in the home, and the child in the school, by effective pictorial posters and carefully prepared leaflets. We are

[1] The B.D. Presto Sanatorium Thermometer, manufactured by Becton, Dickinson and Co., Rutherford, N.Y., U.S.A., is supplied at the following prices: Two-minute, $1.50; one-minute, $1.75. Full particulars may be obtained on application.

glad to be able to give a reproduction of a striking series of educational pictures, which can now be obtained in handbill and poster forms from the office of the *Medical Officer*.[1]

NEW FORMS OF FASTENERS.

Dr. C. R. Rutland, of 1, Weymouth Street, W. 1, has favoured us with specimens of his ingenious and serviceable new forms of fasteners, which will be of much service not only in Red Cross and military



THE "VEE" LIGHTNING SAFETY-PIN AND BANDAGE-FASTENER.

THE RUTLAND HOOK-PIN.

work, but in hospitals, sanatoria, and other institutions, and for general use. The chief features of the "VEE" LIGHTNING SAFETY-PIN

[1] Full particulars regarding prices of the "Which Way are you Going?" Posters and Handbills can be obtained on application to the Manager of the *Medical Officer*, 36-38, Whitefriars Street, London, E.C. 4.

and BANDAGE-FASTENER are indicated in the accompanying illustrations. It is an exceedingly simple but very effective contrivance. It can be applied rapidly, affords security in fixation, provides for the application of varying degrees of tension, and can be used with but little risk of scratches or punctures. Not only is the fastener excellent for the fixing of bandages and surgical dressings, but it will be found useful in adjusting skirts, clipping trousers, replacing buttons, and as a fastener for underclothing, dressing-jackets, and other forms of apparel. Dr. Rutland has also introduced what he calls THE HOOK-PIN. This is simplicity personified, as is shown by the figures annexed. It is most serviceable for a number of purposes, such as fastening skirt-bands, fixing puttees, as trouser clips, and the like. For those engaged in open-air pursuits this clever contrivance will be invaluable. Both forms of fasteners can be procured at small cost.[1]

REQUISITES FOR THE SANATORIUM, TUBERCULOUS PATIENTS AND THEIR HOMES.

Under the designation of THE "BLAIR" FIRELIGHTER there has been introduced a simple, inexpensive contrivance for the easy, economic, time and trouble saving lighting of domestic fires. It consists of a specially designed fire-brick with receptacle for paraffin. When soaked with the inflammable oil and placed in the grate and covered with coal, it is lighted, and so starts the fire. THE "BLAIR" COAL-SAVER is another appliance likely to be appreciated in war days. It is a specially shaped fire-brick made of carefully selected clay. It occupies a mid-position in the grate, absorbs much heat, and acts as an effective radiator.[2]

THE "BLAIR" COAL-SAVER.

CALCREOSE is a new creosote preparation which promises to be of value in the treatment of tuberculosis. Creosote has been extensively used in this disease, and in the opinion of many has proved of real service. But it has serious drawbacks, and some patients cannot tolerate it. Calcreose seems to possess the advantages of creosote without its defects. It is a combination of calcium with beechwood creosote. It is a reddish-brown granular powder which can be easily taken in tablet form.[3]

"IODICIN" is a calcium salt of iodoricinoleic acid which appears to merit investigation as probably a serviceable preparation in cases of tuberculosis, particularly where there is glandular involvement or any taint of syphilis. It is well tolerated by cases unable to take the

[1] The fasteners invented by Dr. C. R. Rutland can be procured from Messrs. Allen and Hanbury, Ltd., 48, Wigmore Street, W. 1, or may be obtained wholesale from the manufacturers, Messrs. Allcock and Co., Ltd., Redditch.

[2] Particulars regarding the "Blair" Firelighter and Coal-Saver can be obtained from the West End Supply Co., Berwick House, 139, Oxford Street, London, W. 1.

[3] Particulars regarding Calcreose can be obtained from the manufacturers, the Maltbie Chemical Company, 246-250, High Street, Newark, New Jersey, U.S.A.

iodides of potassium or sodium; and is available in capsules, each containing three grains.[1]

As a reliable preparation for the local application of iodine in a form which is readily absorbed, IODINE-VASOGEN is to be recommended. It is available in 6 per cent. and 10 per cent. solutions, which will be found convenient for use as a paint, for purposes of inunction, or for plugging sinuses and cavities. It can also be administered internally.[2]

PERISTALTIN "CIBA" is useful in dealing with cases of chronic constipation. It is a glucoside of cascara sagrada, and can be administered subcutaneously or taken by the mouth. It has proved of special value in post-operative intestinal paresis. It should prove of service in certain cases of tuberculosis where there is difficulty in obtaining peristaltic response. It can be obtained in tablets, each containing three-fourths grain, or in ampoules.[3]

ELBON "CIBA" has been introduced as a safe, reliable, and serviceable antipyretic in the treatment of febrile tuberculous cases. It is a new cinnamic acid preparation, and can be taken continuously for some considerable time with advantage. It is supplied in tablets, and is manufactured by the Society of Chemical Industry in Basle, Switzerland.[4]

MOLSYNTH is a new form of malt and cod-liver oil substitute, which promises to be of much value as a nutrient and restorative for tuberculous and tuberculously inclined subjects. Under existent war conditions this preparation is likely to become popular in hospital and sanatoria and in dispensary work.[5] The malt is procured from winter malted Scotch barley, and is of high diastatic activity. The cod-liver oil substitute is a synthetized product, and is said to contain all the elements of the finest cod-liver oil.

TOILET LANOLINE is a preparation of special value to patients undergoing open-air treatment. Indeed, for all followers of the outdoor life it is of the greatest service as a soothing and softening application for the skin. It protects from the ill-effects of sun, rain, wind, and prejudicial weather. Men find Toilet Lanoline of particular benefit for a skin lubricant before and after shaving. It can now be obtained in a convenient form of collapsible tube in two sizes.[6]

[1] Full particulars regarding "Tabloid" "Iodicin" (Capsula) can be obtained on application to Burroughs Wellcome and Co., Snow Hill Buildings, Holborn, E.C.

[2] "Iodine-Vasogen" and other convenient forms of "Vasogen" are manufactured by Messrs. E. T. Pearson and Co., Ltd., London Road, Mitcham, Surrey.

[3] Particulars regarding Peristaltin "Ciba" can be obtained on application to the Saccharin Corporation, Ltd., 36-37, Queen Street, Cheapside, E.C.

[4] Particulars regarding Elbon "Ciba" can be obtained from the Saccharin Corporation, Ltd., 36-37, Queen Street, Cheapside, London, E.C.

[5] Particulars regarding "Molsynth" can be obtained from the manufacturers, Messrs. Oppenheimer, Son and Co., Ltd., 179, Queen Victoria Street, E.C.

[6] For particulars regarding the various forms in which "Toilet Lanoline" can now be obtained application should be made to Messrs. Burroughs Wellcome and Co., Snow Hill Buildings, Holborn, E.C.

THE OUTLOOK.

THE PUBLIC HEALTH (TUBERCULOSIS) REGULATIONS, 1917.

THE President of the Local Government Board has issued an Order providing that medical officers of health, instead of furnishing the Army Council with particulars of male persons between certain specified ages who have been notified as suffering from tuberculosis, shall in future furnish such particulars to the Chief Commissioner of Medical Services at the Ministry of National Service. The object of the Order is to assist the Ministry of National Service, who have now taken over the duties of the Army Council with respect to enlistment into the army. The operation of the Order is limited to the duration of the present war. The notifications should be forwarded by post in a sealed envelope (which need not be stamped) addressed in the manner prescribed by the Order, and marked "O.H.M.S." The terms of the Order are as follows: "Whereas by the Public Health (Tuberculosis) Regulations, 1916 (hereinafter referred to as 'the Regulations of 1916'), we, the Local Government Board, altered the Public Health (Tuberculosis) Regulations, 1912 (hereinafter referred to as 'the Regulations of 1912'), so as to provide amongst other things for the transmission to the Army Council by every medical officer of health of the name and other specified particulars of every male person between the ages of sixteen and forty-five years thereafter entered in the register kept by the medical officer of health in pursuance of subdivision (2) of Article XI. of the Regulations of 1912: Now therefore, in the exercise of the powers conferred upon us by the several statutes in that behalf, we do by this our Order alter the Regulations of 1912 and the Regulations of 1916 and do make the following Regulations, that is to say: ARTICLE I. — Expressions in these Regulations, unless the contrary intention appears, have the same meaning as the like expressions have in the Regulations of 1912. ARTICLE II.—Every medical officer of health, in lieu of transmitting to the Army Council the notification prescribed by subdivision (*b*) of Article II. of the Regulations of 1916, shall, from and after the date of this Order, send to the Chief Commissioner of Medical Services, Ministry of National Service, Westminster, London, S.W. 1, a notification containing the name, and the other particulars specified in the Regulations of 1916, of every male person between the ages of sixteen and forty-five years hereafter entered in the register kept by the medical officer of health in pursuance of subdivision (2) of Article XI. of the Regulations of 1912, within a week after the entry is made therein. ARTICLE III.—The provisions of Articles III. and IV. of the Regulations of 1916 shall apply to the notifications prescribed by Article II. of this Order in like

manner as they apply to the notifications prescribed by Article II. of the Regulations of 1916. ARTICLE IV.—This Order may be cited as 'The Public Health (Tuberculosis) Regulations, 1917,' and shall be in force during the continuation of the present war."

TREATMENT OF DISCHARGED SOLDIERS AND SAILORS SUFFERING FROM TUBERCULOSIS.

The Local Government Board have issued a circular drawing the attention of local authorities to the revised arrangements which have recently come into operation for the provision of treatment for men discharged from the Army and Navy on account of tuberculosis. The arrangements which have hitherto been made for this purpose were briefly as follows: "(1) In the case of men who were about to be discharged from the Army or Navy suffering from tuberculosis and requiring residential treatment, and who were insured under the National Insurance Acts, the necessary accommodation has been found by the Insurance Commissioners or the appropriate Insurance Committee. (2) In the case of such men who were not so insured the Local Government Board have arranged for the provision of residential treatment for such as were not in a position to obtain treatment at their own expense. This was generally done through the council of the county or county borough in which the men resided while in civil life. These arrangements were made by the Board at the request of the Treasury and the War Office, and, at first, related only to uninsured officers and men about to be discharged from the Army on account of tuberculosis. The scope of the arrangements was afterwards extended to include nurses serving temporarily with Queen Alexandra's Imperial military nursing service and the Territorial Force nursing service, and, at the request of the Admiralty, similar arrangements were made as regards uninsured officers and men of the Royal Navy and Royal Marines." As regards the provisions of Section 4 of the National Insurance (Part I. Amendment) Act, 1917, the Insurance Commissioners have now, after consultation with the Ministry of Pensions and the Board, made regulations under that section extending sanatorium benefit to all invalided uninsured sailors and soldiers whose income from all sources does not exceed £160 a year. It will consequently in future fall to the Insurance Commissioners and the Insurance Committees to deal not only with cases of insured officers and nurses and of insured non-commissioned officers and men discharged from the Army or Navy suffering from tuberculosis, but also with the cases of all uninsured non-commissioned officers and men discharged from the Army and Navy suffering from tuberculosis whose income does not exceed £160 per annum. Uninsured officers and uninsured nurses as well as uninsured non-commissioned officers and men whose income exceeds £160 per annum will be dealt with by the Ministry of Pensions. It will be observed that the effect of the alteration in procedure is to relieve the local authorities of the duty of providing directly for the treatment of the uninsured Army and Navy cases, but it is anticipated that Insurance Committees generally will be desirous of arranging with the health authorities of their areas for the provision of the necessary residential treatment for discharged soldiers and sailors suffering from

tuberculosis. In aid of the immediate preferential treatment in residential institutions of discharged soldiers and sailors, special grants are payable to Insurance Committees, which it is open to an Insurance Committee to agree to pay over wholly or in part to the health authority in connection with arrangements securing to the Insurance Committee the provision of such treatment by the authority. The Ministry of Pensions have undertaken to defray the cost of the residential treatment of discharged soldiers and sailors suffering from tuberculosis in any case in which the tuberculosis officer (or other medical adviser of the Insurance Committee) certifies that the condition of the patient renders it desirable that he should be an inmate of a residential institution, although it is not reasonably probable that residential treatment will restore the patient to any material degree of working capacity. The Board have already, at the request of the Ministry of Pensions, arranged for the setting aside of special accommodation for these cases in London and the Home Counties, and steps are being taken to provide additional accommodation at convenient centres in different parts of the country. The Board wish to be informed whether the health authorities have available any vacant accommodation which would be suitable for the treatment of cases in this category.

DIETARIES FOR TUBERCULOUS PERSONS IN SANATORIA AND HOSPITALS.

The application of the Rationing Scheme to institutions dealing with tuberculous cases has been the subject of much discussion. We have received a communication from Mr. F. J. Willis, C.B.E., Assistant Secretary to the Local Government Board, Whitehall, S.W. 1. The President of the Local Government Board has had under consideration with the Food Controller the position of institutions for the treatment of tuberculosis in relation to the system of compulsory rationing. The

WEEKLY ALLOWANCE OF EACH ARTICLE "AS PURCHASED."

	For Persons without much Constitutional Disturbance.		For Persons with Constitutional Disturbance.	
	Men.	Women.	Men.	Women.
Milk	14 pints	14 pints	21 pints	21 pints
Meat (including suet)	3½ pounds	3 pounds	3½ pounds	3 pounds
Bacon	½ ,,	½ ,,	½ ,,	½ ,,
Fish	½ ,,	½ ,,	1 ,,	1 ,,
Cheese	½ ,,	½ ,,	4 ounces	4 ounces
Oatmeal	½ ,,	½ ,,	½ pound	½ pound
Pulses	½ ,,	½ ,,	—	—
Bread	4 ,,	3 ,,	3 pounds	3 pounds
Flour	½ ,,	½ ,,	½ ,,	½ ,,
Potatoes	5 ,,	4 ,,	2 ,,	2 ,,
Cereals	¾ ,,	¾ ,,	¾ ,,	¾ ,,
Sugar	½ ,,	½ ,,	½ ,,	½ ,,
Jam, syrup, etc. ...	¾ ,,	¾ ,,	¾ ,,	¾ ,,
Margarine and other fats	10 ounces	10 ounces	10 ounces	10 ounces

weekly consumption of every member of the general public is now restricted to the amounts specified of the following articles: Meat, 1¼ pounds (adult); meat, 10 ounces (child under ten); butter or/and margarine, 4 ounces; sugar, 8 ounces. The scheme admits of a special scale being approved by the Food Controller in the case of hospitals and similar institutions. As regards sanatoria, the Board have formulated the dietaries set out on p. 100, and these scales have been temporarily approved by the Food Controller for the purpose of paragraph 32 of the Local Rationing Scheme, M.G. (L. and H.C. Rationing) 5, issued by the Ministry of Food. These scales will apply only to patients actually suffering from the various forms of tuberculosis. It must be noted that at any time it may be necessary to substitute equivalent amounts of other food-stuffs for not more than 1 pound of meat or 7 pints of milk per week. For the purposes of the rationing scheme "meat" is defined by the Ministry of Food as including butcher's meat and pork, bones, offal, suet and sausages, bacon and ham, cooked, tinned, preserved and prepared meats, venison and horse meat, and poultry, rabbits, game and hares. In certain instances a larger amount of these foods may be regarded as the equivalent of the rationed quantity of butcher's meat. The officers of sanatoria must comply with the scale of rations prescribed by the Ministry of Food for the general public, unless they are suffering from tuberculosis, in which case the scale available for patients will apply. The scale for children under ten will be three-fifths of the corresponding scale for the adult woman.

LONDON'S TUBERCULOSIS PROBLEM.

It is stated that no less than 500 cases of pulmonary tuberculosis are on the waiting list of the London Insurance Committee. Recently representatives of the London borough councils met in conference to discuss lines for common action in regard to the treatment of tuberculosis in the Metropolis. There was unanimous opinion that the time had arrived for the abolition of the existing wasteful, overlapping, and unsatisfactory system, and the formation of one central authority responsible for the administrative control of all cases of tuberculosis, whether insured or uninsured. The following are the chief conclusions and recommendations: "Responsibility of recommending cases for treatment, whether institutional or not, should rest with the tuberculosis medical officer of each council who possesses intimate knowledge of each patient's physical and home conditions. Greater attention must be paid to the treatment of advanced and incurable cases of tuberculosis for which at present inadequate provision is made. Most of these cases are in an infective state and liable to spread the disease either in their own homes or by wandering from place to place. The only provision for them at present, if insured, is in a workhouse infirmary. The segregation of advanced cases should be undertaken by each council by the provision of a suitable home free from any pauper taint. Insufficient provision exists in London for the after-care of tuberculous persons. It is desirable for the boroughs either singly or in groups to provide colony treatment, including employment and medical supervision, for selected cases. The period of sanatorium treatment, except for the earliest cases, should be shortened until more adequate accommodation is available, thus providing educational treat-

ment for a larger number of patients. Day sanatoria or open-air schools should be provided, and regarded as preventive as well as curative in function; attendance at them should not be limited to definite cases of tuberculosis." These suggestions are far reaching. It is very necessary that without delay a serious attempt should be made to deal adequately with tuberculosis in London.

NOTES AND RECORDS.

All interested in the establishment of colonies for the tuberculous should make a point of studying Dr. J. E. Esslemont's suggestive brochure on "Garden Cities for Consumptives: A National Scheme Outlined."[1]

Dr. P. C. Varrier-Jones, the Hon. Medical Officer of the Cambridgeshire Tuberculosis Colony at Papworth Hall, and Mr. A. T. Bartholomew, M.A., the Under-Librarian in the University of Cambridge, who is acting as Hon. Librarian of the colony, have issued an appeal for books to provide for the establishment of two libraries at the colony, one for members of the staff and patients in non-infectious stages of tuberculosis, and the other for patients in infectious stages of the disease. Donations of books or contributions in money should be sent to the Hon. Medical Officer at the County Tuberculosis Dispensary, 33, Regent Street, Cambridge.

The Tuberculosis Society, at its last meeting on March 25, considered the question of hospital provision for advanced cases of pulmonary tuberculosis, and the following resolution was approved: "That the Tuberculosis Society is of opinion that no adequate provision exists for the treatment of advanced cases of tuberculosis; that a tuberculosis hospital should be created in relation to every tuberculosis dispensary; that such hospitals should be under the medical control of the tuberculosis officers; and that the Society will welcome any effort on the part of the National Association to bring such hospitals into being."

The American National Association for the Study and Prevention of Tuberculosis, 105, East Twenty-second Street, New York City, is manifesting great activity. Summarizing the facilities now available for the war emergency, as the result of the Association's activities, the following claim is made: There are at the present time in this country 600 tuberculosis hospitals and sanatoria with a bed capacity of over 43,000; 1,400 anti-tuberculosis associations and committees, including a State association in every State and most of the outlying territories of the United States; nearly 500 special tuberculosis dispensaries and clinics; more than 1,000 open-air schools; and approximately 3,000 special tuberculosis nurses.

All medical superintendents of sanatoria and every tuberculosis officer should make a point of studying the recently issued Local Government Reports on Dried Milk.[2]

[1] "Garden Cities for Consumptives: A National Scheme Outlined." By J. E. Esslemont, M.B., Medical Superintendent Thellane Sanatorium, Bournemouth, is published by the Scientific Press, Ltd., 28 and 29, Southampton Street, Strand, W.C. 2. Price 3d.

[2] "Reports to the Local Government Board on Public Health and Medical Subjects." (New Series. No. 116.) London: H.M. Stationery Office, Imperial House, Kingsway, W.C. 2. 1918. Price 2s. net.